



Appellant's Appeal Brief  
Applicants: De Baan, Uittenbogaard, Coulomb  
Attorney Docket No.: 33474-00007 USPT

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Application/Serial No. : 10/759,651  
Applicants : Jaap de Baan  
Ries Uittenbogaard  
Louis Coulomb  
Application Filing Date : January 16, 2004  
Title : CATENARY ANCHOR LEG MOORING SYSTEM  
TC/A.U. : 3617  
Examiner : Jesus D. Sotelo  
Docket No. : 33474-00007 USPT

TO: Commissioner for Patents  
P.O. Box 1450  
Alexandra, VA 22313-1450

**APPELLANT'S APPEAL BRIEF**  
**UNDER 37 C.F.R. 1.192**

**(1) Real Party in Interest**

Bluewater Energy Services, B.V.  
Hoofddorp, The Netherlands

**(2) Related Appeals and Interferences**

None

**(3) Status of Claims**

The referenced patent application was filed with five (5) claims, one (1) independent claim, and four (4) independent claims.

In the first Office Action, dated September 8, 2004, all five (5) pending claims were rejected.

In the response to the first Office Action, claim 3 was canceled, and claims 1, 2, 4, and 5 remained pending.

In the second Office Action, dated March 31, 2005, claims 1, 2, 4, and 5 were rejected.

In the response to the second Office Action, claims 1, 2, 4, and 5 remained pending.

In an Advisory Action, dated June 7, 2005, the Examiner indicated that the amendments did not place the claims in a condition for allowance.

On July 29, 2005, a Request for Continued Examination was submitted.

Finally, on August 10, 2005, pending claims 1, 2, 4, and 5 were again rejected.

On October 4, 2005, during a telephone conference between the Examiner and the undersigned, the Examiner maintained his rejection of pending claims 1, 2, 4, and 5.

Accordingly, claims 1, 2, 4, and 5 remain pending, and Applicants hereby appeal the rejection of pending claims 1, 2, 4, and 5.

**(4) Status of Amendments**

No amendments have been submitted in response to the Office Action of August 10, 2005.

**(5) Summary of Invention**

The disclosed invention is a buoy which continuously floats on the sea surface. Such buoys are used in offshore locations for connection to rigid steel subsea catenary flow lines. The catenary flow lines conduct hydrocarbons from subsea reservoirs to the floating buoy on the sea surface. Tanker vessels floating on the surface connect to the buoy, which continuously floats on the sea surface to receive the hydrocarbons and carry these hydrocarbons to another location (page 3, lines 1-7, and Figure 2).

The problem solved by the continuously floating buoy of the present invention is reduction of pitching and rolling of the buoy caused by wind and wave forces. This is important because the pitching and rolling of the continuously floating buoy causes metal fatigue in the attached catenary flow lines (page 4, lines 2-4).

The solution to the problem of reduction of pitching and rolling of the buoy which continuously floats on the sea surface is: a) to construct the buoy with a ballast compartment which moves the center of gravity below the sea surface (page 4, lines 17-19) and b) to construct the ballast compartment using what is known about the natural pitch-and-roll periods based on the design and size of the continuously floating buoy and then use that information for a ballast compartment design that works against the natural pitch and roll of the continuously floating buoy (page 3, lines 2-3).

(6) **Issue**

Whether U.S. Patent No. 5,431,589 to Corona sufficiently teaches the limitations of a buoy which continuously floats on the sea surface with a ballast compartment that works against the natural pitch and roll of the floating buoy to anticipate the disclosed invention.

(7) **Grouping of Claims**

The issues presented in this appeal pertain to independent claim 1.

(8) **Argument**

The position of the applicant is that the Corona '589 reference does not teach a continuously floating buoy constructed to minimize pitch and roll while floating on the sea surface.

Rather, a close reading of the Corona '589 reference reveals that the solution to the problem of reducing pitching and rolling of the floating buoy is to submerge the buoy below the sea surface in rough wind and sea conditions. Specifically, the following extracts from the Corona '589 reference described the up-and-down (floating-submerged) operation of the buoy described in the Corona '589 reference. Key words appear in italics.

“The body 26 has a *controllable buoyancy*, as will be described in further detail herein....” (col. 3, lines 41-42)

“Figure 2 shows the buoy 16 in an *alternate submerged* position, as indicated by the dashed lines, when not in use and in severe sea state conditions, ice accumulation and ice movement are experienced in the anchorage 10.” (col. 4, lines 3-7)

“Operation of the buoy 16 to *move between a floating and submerged condition* as carried out by a combined operation of floating suitable ballast compartments within the buoy....” (col. 4, lines 30-33)

“Suitable controls, not shown, may be operated to control the flooding of tanks or compartments 168, 170, 172 and 174 as well as additional ballast tanks 160, 162 and 166, if needed, to control the buoyancy and stability of the buoy 16 as it *moves between a working position on the surface 17 and the submerged position.*” (col. 7, lines 35-42)

In pending independent claim 1, the buoy is described as being “non-submersible.” The Corona ‘589 reference teaches a submersible buoy.

Further in pending independent claim 1, the buoy is described as being constructed “for continuous flotation” on the sea surface. The Corona ‘589 reference teaches a buoy designed for intermittent flotation on the sea surface.

The limitations of being “non-submersible” and designed “for continuous flotation” on the sea surface are not described in the Corona ‘589 prior art relied upon to

reject the pending claims. Accordingly, claim 1 is allowable over the Corona '589 reference.

(9) **Appendix**

A clean copy of the pending claims is attached hereto at Tab A.

Date: November 21, 2005

Respectfully submitted,

A handwritten signature in black ink, appearing to read "A. R. Thiele", written over a horizontal line.

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Attachments

## CLEAN COPY OF PENDING CLAIMS

### WHAT IS CLAIMED IS:

1           1.     *(Twice amended)* A system for stabilizing a floating catenary anchor leg mooring  
2 system used in the production of oil from subsea reservoirs comprising:

3                   a non-submersible hollow buoy assembly for continuous floatation on the sea  
4 surface;

5                   said non-submersible hollow floating buoy assembly including a cylindrical hull  
6 portion having a center of gravity which is below the sea surface;

7                   said cylindrical hull portion further including a ballast compartment having a  
8 portion below the sea surface;

9                   said ballast compartment being constructed and arranged to adjust the natural  
10 pitch and roll periods of said non-submersible hollow buoy assembly to reduce pitch and  
11 roll in response to wind and wave forces;

12                   means for providing a path for oil to travel from the subsea reservoirs to a tanker.

1           2.     *(Previously amended)* The system for stabilizing a floating catenary anchor leg  
2 mooring system as defined in Claim 1 wherein said ballast compartment is constructed and  
3 arranged to be filled with sea water.

1           3.     *(Canceled)*

1           4.     *(Previously amended)* The system for stabilizing a floating catenary anchor leg  
2 mooring system as defined in Claim 1 wherein said cylindrical hull portion has a diameter which  
3 is greater than two times its height.

1           5.     *(Previously amended)* The system for stabilizing a floating catenary anchor leg  
2 mooring system as defined in Claim 4 wherein said ballast compartment is substantially  
3 cylindrical and follows the circumference of said cylindrical hull portion.